

COMBINED GOLF BAG AND GOLF CART OPERABLE BY ONE HAND

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 The present invention relates to golf equipment and more particularly to an improved combined golf bag and golf cart having wheels adapted to either extend or collapse by operating the handle by only one hand.

2. Description of Related Art

10 Combining a golf bag and a golf cart into one unit for facilitating a golfer to transport the golf bag to any place in the playing field is well known. For example, U.S. Patent No. 6,050,592 disclosed a combined golf bag and collapsible golf cart in which a finger of the hand grasping a pull handle can pull a lock release ring to unlock a locking mechanism through a cable so that the unit can go from a retracted position to an extended position. To the contrary,
15 wheel mechanisms can be retracted to nest against a golf bag assembly when the unit is not in use, thereby saving storage space.

20 However, the patent suffered from two disadvantages. For example, a pulling of the handle can move the wheels upwardly and outwardly through the support rods, the hinge plate, and other associated members. Unfortunately, a smooth extension of the wheels is not easy to obtain since the pulling force exerted on the support rods, the hinge plate, and the associated members may not balance in both sides. Moreover, as shown in FIGS. 6 to 8 of the patent, a
25 substantial force is required to exert for extending the wheels due to the provision of the tension springs in the moving structure. Hence, it requires one handle to pull the handle and the other hand to hold the golf bag in place in operation. Such operation involving two hands is not convenient. Thus, the need for improvement still exists.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a combined golf bag and golf cart having wheels adapted to either extend or collapse by operating a retractable handle by only one hand.

- 5 The above and other objects, features and advantages of the present invention will become apparent from the following detailed description taken with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

- 10 FIG. 1 is a perspective view of a preferred embodiment of combined golf bag and golf cart according to the invention, where the golf cart is in a retracted position;

FIG. 2 is an exploded view of FIG. 1;

FIG. 3 is an exploded view of a retractable handle assembly of FIG. 1;

- 15 FIG. 4 is an exploded view of a lower coupling tube and a lower block;

FIG. 5 is an exploded view of an upper coupling tube, an upper block, and positioning sleeves;

FIG. 6 is an exploded view of a wheel assembly FIG. 1;

- 20 FIG. 7 is a cross-sectional view of the handle assembly in a retracted position;

FIG. 8 is a cross-sectional view of the handle assembly to be extended by pressing a push button;

FIG. 9 is a cross-sectional view of the handle assembly, where a sliding tube of the handle assembly is extending;

- 25 FIG. 10 is a cross-sectional view of the handle assembly, where a sliding tube is about to extend by pressing the push button;

FIG. 11 is a cross-sectional view of the handle assembly, where the sliding

tube has been fully extended;

FIG. 12 is a perspective view of the combined golf bag and golf cart, where the golf cart is in an extended position;

FIG. 13 is a schematic top plan view showing the extended wheels;

5 FIG. 14 is a schematic top plan view showing the retracted wheels; and

FIG. 15 is a side elevational view of the combined golf bag and golf cart, with the wheels extended to be adapted to move along a supporting ground.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

10 Referring to FIGS. 1 to 15, there is shown a golf bag and a golf cart combined into a unit in accordance with the invention. The unit comprises a longitudinal support mechanism 10 having a section of arcuate shape, a wheel assembly 20 detachably formed with the support mechanism 10, the wheel assembly 20 comprising two pairs of wheel mounts 24 and 24A having a
15 section of arcuate shape (see FIGS. 2, 6, 13), each pair having a wheel 26 mounted at a lower end, the wheels 26 being adapted to withstand the weight of the unit, a retractable handle assembly 30 inserted in the support mechanism 10, a honeycomb structure 100 fastened at an upper part of the handle assembly 30, and a container 101 fastened at a lower part of the support
20 mechanism 10. Each component will be described in detail below.

The support mechanism 10, as shown in FIGS. 1 to 3, is an elongate member having a somewhat curved outer surface. The support mechanism 10 comprises a top stop 11, a bottom stop 12, a longitudinal groove 110 coupled between the top stop 11 and the bottom stop 12, and a longitudinal projection
25 111 having a concave surface. A lower support tube 31 is inserted into the groove 110 to be spaced from the top stop 11 and the bottom stop 12 and urges against the concave surface of the projection 111. An upper limit aperture 310

and a lower limit aperture 311 are provided on the lower support tube 31. An abutment tube 32 is inserted into the lower support tube 31. A base tube 33 is disposed on top of the bottom stop 12 with the abutment tube 32 inserted therein. The base tube 33 has two side apertures 330 each pivotably coupled to a link arm 40. The link arm 40 has a first bent end 41 pivotably coupled to an intermediate aperture 242 (see FIG. 6) of each of the wheel mounts 24 and 24A, and a second bent end 42 pivotably coupled to two side apertures 330.

As shown in FIGS. 3 to 4, a lower coupling tube 34 is secured between an upper support tube 36 and the lower abutment tube 32. The lower coupling tube 34 comprises mated first and second half housings 340 and 341. A lower block 35 is slidably disposed in the lower coupling tube 34. Each of the first and second half housings 340 and 341 has an upper aperture 3400 and an intermediate aperture 3410. The lower block 35 comprises a wedge 350 including a shaft 351, an oblique surface 352 at one side, and a spring 353 put on the shaft 351 at the other side in which two ends of the shaft 351 are slidably positioned at the opposite apertures 3410 with the spring 353 compressed. The lower block 35 further comprises an oblique surface 354 matingly coupled to the oblique surface 352, and a longitudinal trough 355 with the shaft 351 passed through. Also, the shaft 351 can move upwardly or downwardly in a range defined by the trough 355 as the lower block 35 slides.

As shown in FIG. 3, two positioning sleeves 360 are provided on the interior wall of the upper support tube 36. One positioning sleeve 360 comprises a plurality of longitudinal apertures 361. The sliding tube 37 has its lower portion slidably disposed in the positioning sleeves 360. An upper coupling tube 38 is secured to the bottom of the sliding tube 37. As shown in FIG. 5, the upper coupling tube 38 comprises a first half housing 380 having an intermediate aperture 3800 and a mated second half housing 381 having an intermediate

aperture 3810. An upper block 39 is disposed in the upper coupling tube 38. The upper block 39 comprises a wedge 390 including a shaft 391, an oblique surface 392 at the other side, and a spring 393 put on the shaft 391 at one side in which two ends of the shaft 391 are slidably positioned at the opposite
5 apertures 3810 with the spring 393 compressed. The upper block 39 further comprises an oblique surface 394 matingly coupled to the oblique surface 392, a longitudinal trough 395 with the shaft 391 passed through so that the shaft 391 can move upwardly or downwardly in a range defined by the trough 395 as the upper block 39 slides, and a top post 396.

10 A handle 50, as best seen from FIG. 3, has a lower connection member 51 secured to the top of the sliding tube 37, a channel 52 through the connection member 51, and a push button 53 slidably disposed in the channel 52, the push button 53 having a bottom peg 530 fitted in the top of a connecting tube 54 in the sliding tube 37. The post 396 is fitted in the bottom of the connecting tube
15 54. This forms the construction of the support mechanism 10.

As shown in FIGS. 2 and 6, the wheel assembly 20 is shaped to secure to the support mechanism 10. The wheel assembly 20 comprises an upwardly extended longitudinal protrusion 21 between two wheels 26. The longitudinal protrusion 21 comprises a longitudinal slot 21A for receiving the handle
20 assembly 30. The wheel assembly 20 further comprises a longitudinal groove 210 at either side (see FIGS. 3, 6 and 12). The first bent ends 41 may pass the grooves 210 to pivotably couple to the apertures 330 of the base tube when the wheel assembly 20 and the support mechanism 10 are assembled together. A tunnel 22 having a flaring shape is provided on top of the longitudinal protrusion
25 21. A frame member 23 of metal (see FIG. 6) is fitted in the tunnel 22 and comprises a pair of upper apertures 230 and a pair of lower apertures 231. Each of the wheel mounts 24 and 24A has an upper aperture 240 or 240A

pivotably coupled to the upper apertures 230 or 231. As an end, each pair of wheel mounts 24 and 24A are fitted in the frame member 23. The frame member 23 comprises two smoothing blocks 23A each fitted in the top of the wheel mount 24 or 24A for smoothing the pivoting of the wheel mounts 24 and 24A in the frame members 23. Two pairs of screws 252, 253 are driven through lower apertures 241, 241A of each pair of wheel mounts 24 and 24A and two pairs of apertures 250, 251 of either pivot member 25 of metal for fastening the wheel mounts 24 and 24A and the pivot member 25 together. Moreover, the pivot member 25 comprises a thumb screw 254 for securing to the wheel 26. This forms the construction of the wheel assembly 20.

In assembly, first fasten the wheel assembly 20 and the support mechanism 10 together. Next, insert the handle assembly 30 into the slot 21A. Pass the first bent ends 41 through the grooves 210 to fasten at the intermediate portions of the wheel mounts 24.

In an upright position of the unit (see FIG. 1), the container 101 is supported on the ground. A user can then insert golf clubs through the honeycomb structure 100 in the container 101 for storage. For moving the unit along a playing field, the user can pull the handle assembly 30 for actuating the link arms 40 to extend the wheel mounts 24 and 24A outwardly and upwardly (see FIGS. 12, 13). As an end, the user can pull the handle 50 for moving the unit (see FIG. 15).

A pulling force on the handle assembly 30 is reduced to a minimum to enable the pulling handly assembly 30 smoothly since the frame members 23 are particularly fastened in the flaring tunnels 22. In other words, the side thrust and the friction of the wheel mounts 24 and 24A is reduced to a minimum. As a result, this enables a smoothly pulling of the unit by only one hand.

The handle assembly 30 is in a retracted position (see FIG. 7) and the link

arm 40 is also in a retracted position (see FIGS. 2 and 14). The wheel mounts 24 and 24A nest against the tunnels 22. The shaft 391 is inserted in the aperture 361. Hence, the upper block 39 presses the lower block 35 to urge the oblique surface 354 against the oblique surface 352, thereby moving the wedge 350 outwardly toward the lower limit aperture 311 by compressing the spring 353. As an end, the shaft 351 moves in the lower limit aperture 311 for locking.

For extending the handle assembly 30, a user can simply hold the handle 50 with one hand while pressing the push button 53 with one finger (see FIG. 8). The push button 53 is thus pressed down to lower the connecting tube 54 and press the upper block 39 for urging the oblique surface 394 against the oblique surface 392, resulting in a moving of the wedge 39. Also, the spring 393 is compressed to cause the shaft 391 to clear from the aperture 361. To the contrary, a release of the finger from the push button 53 will unlock the lower block 35. The spring 353 thus expands laterally to move the wedge 350 in an opposite direction. Next, the lower block 35 will move upward due to the engagement of the oblique surfaces 354, 352. The upper block 39 then moves upward to be misaligned with the aperture 361 because the shaft 391 has not moved in the aperture 361 yet (FIG. 8). At this time, the shaft 351 will move back to the lower block 35 by the expanding spring 353. Hence, the shaft 351 is unlocked by the lower support tube 31. Thus, the user can pull the handle 50 with the sliding tube 37 moving upward also. Further, the shaft 391 is pushed by the spring 393 to move in the aperture 361 only higher than the immediate bottommost aperture 361 (FIG. 9). As a result, a distance is formed between the upper block 39 and the lower block 35. At this moment, a further pulling of the handle 50 will cause the shaft 391 to move in the aperture 361 for locking with the upper support tube 36 and the abutment tube 32 moving upward together. Also, the upper support tube 36 projects from the top of the lower support tube

31. Finally, the shaft 351 is pushed by the spring 353 to move in the upper limit aperture 310 for locking (FIG. 9). At the same time, the abutment tube 32 moves upward as the upper support tube 36 moves upward, resulting in a movement of the base tube 33 and the link arms 40. The link arms 40 will move outward to cause the wheel mounts 24 and 24A to extend laterally out of the tunnels 22 (see FIG. 12).

As shown in FIGS. 10 and 11, the provision of a plurality of apertures 361 on the positioning sleeve 360 aims at fitting different individuals with various heights. That is, the length of the handle assembly 30 is adjustable. In detail, a simple pressing of the push button 53 will lower the connecting tube 54 to press the upper block 39. Also, the oblique surface 394 is urged against the oblique surface 392, resulting in a moving of the wedge 39 toward the spring 393 for compression. As such, the shaft 391 clears from the aperture 361 (see FIG. 10). At this moment, the user can adjust the length of the sliding tube 37 projected from the top of the upper support tube 36 (see FIG. 11). To the contrary, a release of the finger from the push button 53 will cause the shaft 391 to move back toward the aperture 361 by the expansion of the spring 393. Thus, a proximate aperture 361 can be chosen for locking the shaft 391 therein.

While the invention herein disclosed has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope and spirit of the invention set forth in the claims.